

*AMENDMENTS TO THE CLAIMS*

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Withdrawn) A method of treating a cancer in a mammal, comprising administering to a mammal afflicted with cancer an IL-21 polypeptide, variant, or fragment of either of the foregoing in an amount effective to treat the cancer in the mammal.
2. (Currently Amended and Withdrawn) The A method of claim 1, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises treating a cancer in a mammal, comprising administering to the a mammal a afflicted with cancer an IL-21 polynucleotide encoding the IL-21 polypeptide, variant, or fragment or fragment thereof in an amount effective to treat the cancer in the mammal.
3. (Currently Amended and Withdrawn) A The method of claim 2, comprising administering treating a cancer in a mammal, comprising administering to a mammal afflicted with cancer an expression vector containing the an IL-21 polynucleotide or a fragment thereof in an amount effective to treat the cancer in the mammal.
4. (Withdrawn) The method according to claim 3, wherein the expression vector is pORF.
5. (Withdrawn) The method according to claim 1, wherein the cancer is a melanoma, a sarcoma, or a colon cancer.
6. (Cancelled).
7. (Cancelled).
8. (Withdrawn) The method according to claim 1, wherein the IL-21 polypeptide, variant, or fragment of either of the foregoing is co-administered with a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.
9. (Cancelled).

10. (Cancelled).

11. (Withdrawn) The method according to claim 8, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.

12. (Withdrawn) The method according to claim 8, wherein the cytokine is IL-2, IL-7, or IL-15.

13. (Withdrawn) The method according to claim 8, wherein the antigen-specific T lymphocyte is a tumor specific T lymphocyte.

14. (Withdrawn) A method of treating an immune-related disease in a mammal, comprising administering to a mammal afflicted with an immune-related disease an IL-21 polypeptide, variant, or fragment of either of the foregoing, in an amount effective to treat the immune-related disease in the mammal.

15. (Currently Amended and Withdrawn) ~~A~~ The method of claim 14, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises treating an immune-related disease in a mammal, comprising administering to a the mammal a afflicted with an immune-related disease an IL-21 polynucleotide encoding the IL-21 polypeptide, variant, or fragment or fragment thereof in an amount effective to treat the immune-related disease in the mammal.

16. (Currently Amended and Withdrawn) ~~A~~ The method of claim 15, treating an immune-related disease in a mammal, comprising administering to a mammal afflicted with an immune-related disease an expression vector containing the an IL-21 polynucleotide or fragment thereof in an amount effective to treat the immune-related disease in the mammal.

17. (Withdrawn) The method according to claim 16, wherein the expression vector is pORF.

18. (Withdrawn) A method of preventing a cancer in a mammal, comprising administering to a mammal an IL-21 polypeptide, variant, or fragment of either of the foregoing in an amount effective to prevent the cancer in the mammal.

19. (Currently Amended and Withdrawn) A The method of claim 18, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises preventing a cancer in a mammal, comprising administering to a the mammal a an IL-21 polynucleotide encoding the IL-21 polypeptide, variant, or fragment or fragment thereof in an amount effective to prevent the cancer in the mammal.
20. (Currently Amended and Withdrawn) A The method of claim 19, preventing a cancer in a mammal, comprising administering to a mammal an expression vector containing the an IL-21 polynucleotide or a fragment thereof in an amount effective to prevent the cancer in the mammal.
21. (Withdrawn) The method according to claim 20, wherein the expression vector is pORF.
22. (Withdrawn) The method according to claim 18, wherein the cancer is a melanoma, a sarcoma, or a colon cancer.
23. (Cancelled).
24. (Cancelled).
25. (Withdrawn) The method according to claim 18, wherein the IL-21 polypeptide, variant, or fragment of either of the foregoing is co-administered with a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.
26. (Cancelled).
27. (Cancelled).
28. (Withdrawn) The method according to claim 25, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.
29. (Withdrawn) The method according to claim 25, wherein the cytokine is IL-2, IL-7, or IL-15.

30. (Withdrawn) The method according to claim 25, wherein the antigen specific T lymphocyte is a tumor-specific T lymphocyte.

31. (Withdrawn) A pharmaceutical composition comprising an IL-21 polypeptide, variant thereof, or fragment of either of the foregoing, and a pharmaceutically acceptable carrier, diluent, or excipient.

32. (Withdrawn) A pharmaceutical composition comprising an IL-21 nucleic acid molecule, or fragment thereof, and a pharmaceutically acceptable carrier, diluent, or excipient.

33. (Withdrawn) The pharmaceutical composition according to claim 31, wherein the IL-21 nucleic acid molecule is constructed into an expression vector.

34. (Withdrawn) The pharmaceutical composition according to claim 32, wherein the expression vector is pORF.

35. (Withdrawn) The pharmaceutical composition according to claim 31 further comprising a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.

36. (Withdrawn) The pharmaceutical composition according to claim 33, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.

37. (Withdrawn) The pharmaceutical composition according to claim 33, wherein the cytokine is IL-2, IL-7, or IL-15.

38. (Withdrawn) The pharmaceutical composition according to claim 33, wherein the antigen-specific T lymphocyte is a tumor-specific T lymphocyte.

39. – 56. (Cancelled).

57. (Withdrawn) The pharmaceutical composition according to claim 32 further comprising a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.

58. (Previously Presented) A method for inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with an amount of an IL-21 polypeptide, variant, or fragment of either of the foregoing, effective to induce apoptosis of the natural killer cell.

59. (Currently Amended) A The method of claim 58, wherein contacting the NK cell with an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises for inducing apoptosis of a NK cell comprising contacting the NK cell with a an amount of an IL-21 polynucleotide, encoding the IL-21 polypeptide, variant, or fragment in an amount or fragment thereof, effective to induce apoptosis of the NK cell.

60. (Withdrawn) A method of activating NK cell cytolytic activity, comprising contacting the NK cell with an amount of an IL-21 polypeptide, variant, or fragment of either of the foregoing, effective to activate NK cell cytolytic activity.

61. (Withdrawn) The method of claim 60, wherein the natural killer cell is *in vitro*.

62. (Withdrawn) The method of claim 60, wherein the natural killer cell is *in vivo*.

63. (Currently Amended and Withdrawn) A The method of claim 60, wherein contacting the NK cell with an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises activating NK cell cytolytic activity, comprising contacting the NK cell with an amount of an IL-21 polynucleotide encoding the IL-21 polypeptide, variant or fragment, or fragment thereof, effective to activate NK cell cytolytic activity.

64. (Cancelled).

65. (Cancelled).